DOCUMENT RESUME

ED 224 809 TM 820 745

AUTHOR Turlington, Ralph D.
TITLE Modifying NAEP to Meet State Needs: The Florida Perspective.
PUB DATE [82]
NOTE 20p.
PUB TYPE Reports - Evaluative/Feasibility (142) -- Viewpoints (120)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Academic Achievement; *Academic Standards; Curriculum Development; *Educational Assessment; Educational Quality; Elementary Secondary Education; *Evaluation Needs; *State Programs; Testing Programs; *Test Interpretation; Test Use
IDENTIFIERS *Florida State Department of Education; *National Assessment of Educational Progress

ABSTRACT

The National Assessment of Educational Progress (NAEP) was initiated in the mid-1960's to collect student achievement information over time and describe the data in ways meaningful to the nation's educational and civic leaders. This work presents the Florida perspective on how NAEP can be improved to aid educational decision-makers in the individual states. To produce a comparison of Florida and the nation, the Florida Department of Education conducted a replication of the NAEP testing program in the school year 1974-75. The conclusions could only reveal that Florida was above or below the national average. No one could say whether the national performance was good or bad because NAEP had no performance standards. No one could establish areas of academic need because skill competency levels were not defined and because NAEP procedures did not include the interpretation of the data. Alteration of the NAEP design for greater program impact includes (1) establishing what constitutes acceptable student performance; (2) interpreting the assessment data; (3) strengthening the relationship between NAEP and the individual state assessment programs; and (4) exerting more effort to have curriculum developers use the data. (Author/PN)

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Modifying NAEP to Meet State Needs: The Florida Perspective

Statement of the Problem

Since the turn of the century, the educational enterprise in the United States has changed tremendously. In 1900, citizens were concerned about the mere existence of public schools. Fifty years later, they were concerned about the equality of educational facilities and programs. By the seventies, the public realized that student achievement needed to be monitored. Without evidence of student accomplishments, educators did not know if the students were learning what they should, nor did elected officals have the necessary information for most effectively allocating resources to achieve educational goals.

The National Assessment of Educational Progress (NAEP) was initiated in the mid-1960's to collect student achievement information over time and describe the data in ways meaningful to the nation's educational and civic leaders (NAEP, 1972, pp. 1-3). The first of the national assessments was conducted in 1969-70 (NAEP, 1982, p. 1). Since then, there have been numerous assessments in reading, writing, and arithmetic and in other important areas such as art and citizenship.

But, recently there has been concern about whether the information currently being produced meets the needs of today's educators and elected officials. Several investigations of NAEP have been initiated, the most recent being reported in Measuring the Quality of Education (Wirtz & Lapointe, 1982). The National Institute of Education, the parent funding agency at the federal level, is currently reviewing NAEP to determine if changes are necessary. This paper was solicited to add to the body of information from interested parties who have suggestions on ways to improve NAEP. This work will present

the Florida perspective on how NAEP can be improved to aid educational decision-makers in the individual states.

Use of NAEP in Florida

Florida citizens have supported the collection of student achievement data for many years. The Florida Statewide Assessment Program was initiated in 1971 (DOE, 1981, p. 3). The Program's current enabling legislation (Section 229.57, Florida Statutes) not only authorizes collecting information on how Florida students perform on state objectives, but also on how they perform compared to students nationally (DOE, 1976a).

To produce a comparison of Florida and the nation, the Florida Department of Education conducted a replication of the NAEP testing program in the school year 1974-75 (DOE, 1976b). The assessment was limited to reading and mathematics. Approximately 1700 students at ages nine, thirteen, and seventeen in 259 schools across the state were tested.

The design of the replication study was identical to that of NAEP itself--the same age levels and scoring procedures were used, the same demographic data were collected, and the test items were selected from the NAEP pool of released items. The results of this study were reported in typical NAEP fashion as the average percentage correct for the clusters of items, e.g., main ideas, following directions, geometry, and arithmetic computations. A total reading score and a total mathematics score were reported. From these basic data, numerous comparisons were constructed such as race vs. achievement and sex vs. achievement.

The replication accomplished what it was intended to do: it permitted a comparison between Florida students and students nationally. However, considering the resources expended, it did not provide much useful information. (The effort cost approximately $23.00 per student.) The conclusions could only

reveal that Florida was above or below the national average. No one could say whether the national performance was good or bad because NAEP had no performance standards. No one could establish areas of academic need because skill competency levels were not defined and because NAEP procedures did not include the interpretation of the data.

Now that the NAEP program is being reviewed by NIE, it is enlightening to reflect upon the difficulties Florida had with the NAEP replication study in order to offer suggestions for improving the program. The following sections will focus on three major concerns: (1) establishing performance standards, (2) interpreting the NAEP test results, and (3) assisting state education agencies through improved services.

Defining Standards of Performance

The National Assessment Program could be improved by establishing standards of performance which would define a desirable level of performance for students being assessed. This would permit educators and elected officials to learn quickly whether the schools of the nation are producing students with the desired educational proficiency.

The NAEP effort clearly subscribes to a basic type of comprehensive planning model which calls for defining student goals and then collecting information to reveal the extent to which the goals are being attained. Presumably, discrepancies between what is desired (goals) and what exists (data) represent educational problem areas for which additional resources or changed teaching strategies are necessary.

Indeed, NAEP defined their objectives as " . . . a set of goals which are agreed upon as desirable directions in the education of children" (NAEP, 1970, p. 2). Further, the program subscribes to the purpose of " . . . providing

information on the correspondence between what our educational system is attempting to achieve and what, in fact, it is achieving" (NAEP, 1970, p. 9).

Unfortunately, the NAEP leadership balked at going further toward defining performance standards, perhaps because of pressure exerted by advisory groups at the time. Instead, test exercises were developed so that a full range of student peformance would be described. As the General Education Yearbook stated:

> The intent . . . is . . . to be able to describe the knowledges, understandings, skills, and attitudes of the more able and less able young people as well as those of the average young person. Therefore, [NAEP] develops easy, medium, and difficult exercises which are aimed at each of these three groups (NAEP, 1972, p. 7).

Thus, the intent of defining "what should be" is defeated by a procedure which uses test exercises across the entire spectrum of difficulty without any attempt to estabish desirable levels of performance. NAEP tests merely describe typical student performance rather than pinpoint student educational needs, defined as a gap between what is and what should be. In order to solve this problem, NAEP officials should establish a system which would define desirable levels of performance for students. The accumulation of student achievement data can serve as a useful reference point in determining "what should be."

The recommendation for NAEP to establish standards is made knowing full well the recent controversy over whether student standards of performance can be defined. It has been argued that standards are arbitrary, lead to disruption of the educational system, and will stigmatize students who fail to meet the standards (Glass, 1978; Lewis, 1979). Others have countered that students perform better when they have an incentive to learn, that standards lead to better confidence in the public schools, and that standards lead to increased student achievement (Candor-Chandler, 1978; Fisher, 1978; Henderson, 1978).

The establishment of standards was a troublesome concept to the Wirtz and Lapointe researchers. They concluded that:

> Setting levels of failure, mediocrity, or excellence in terms of NAEP percentages would be a serious mistake. Whatever educational standards are developed in this country will properly be made operative only at the local or possibly the state level. Even the making of judgments about what is "good" or "bad" is reasonable and responsible only in terms of particular educational environments (Wirtz & Lapointe, 1982, p. 33).

Contrary to the Wirtz and Lapointe conclusion, I am convinced that standards can be set and that they are beneficial for students and for educational systems at every level. Such standards do not have to be regarded as if they were founded in national law. Instead, the proposed NAEP standards can be advisory in nature, based upon the informed judgments of people--educators, citizens, and curriculum specialists. States and districts can use the NAEP standards as a point of reference for understanding the test results, whereas now there is no point of reference. The time has come for NAEP to move beyond the mere reporting of typical performance and to report on desirable performance.

Minimal Standards or Quality Standards?

The previous section argued that NAEP should develop student performance standards. These standards, once developed, can promote equality of educational opportunity by defining minimal standards for all students and quality standards for exemplary students.

Defining such standards is not entirely foreign to the work already done by NAEP. For example, in reviewing the mathematics objectives developed when the program began, one immediately notices a three-tiered heirarchy ranging from social mathematics to academic mathematics (NAEP, 1970 pp. 10-11). Further, the mathematics objectives are defined in six levels ranging from

recall of definitions to appreciation of mathematics. The objectives are also assigned to various age levels depending upon complexity, e.g., knowledge of trigonometric terms does not appear as an age-nine objective. Further, as has been stated, the test items range from easy to difficult.

Thus, NAEP already has a framework to begin designating which mathematics skills should be considered "minimal" and which "quality." Minimal objectives would be those which should be attained by all nonhandicapped students. These objectives would be the ones which teachers would strive to impart to every student who is progressing normally in school. Quality objectives would be those which are to be learned by those students who are progressing toward a full college preparatory program with an emphasis in mathematics. Students competent in these skills would naturally be among the best in mathematics.

If NAEP were to designate these two types of expectations, students and educators across the country might work more vigorously to improve achievement because they would have tangible goals. Educators in all states would be working to improve the education offered every student. Experience in Florida with its minimal skills program has clearly demonstrated that the primary beneficiaries of such efforts are the low achievers. Working toward an exemplary set of objectives for academically talented students will enable the nation to continue its historical position as a technological leader in the world. Highly-trained engineers and scientists, of course, will always be needed. But, more than that, life has become so complex and so dependent upon computerized tools and techniques that even ordinary jobs require a knowledge of mathematics, computer processes, and problem-solving skills.

While mathematics was the example used, the same logic extends to the other subject areas as well. NAEP can provide a service to the nation by designating certain skills and knowledges as minimal and others as quality. This would not represent a "federal takeover" of a responsibility traditionally left to the states; it would merely represent the exercise of leadership for the good of the nation as a whole. It would amount to a cooperative effort for the improvement of education everywhere.

Interpreting NAEP Test Results

NAEP has been reluctant to interpret its findings and data ever since its beginning. This is a major defect in the program which prevents it from having significant impact on education either at the national or state level.

Early NAEP publications stated that the reports of test results would merely "describe the educational achievements" of various groups of students (NAEP, 1972, p. v). These publications detailed the kinds of aggregations of data which would be described, e.g., national performance, comparisons of regions, comparisons of demographic groups, and comparisons of age-level groups. The common method of describing the test data was to be in terms of the percentage of students who could perform an exercise successfully. Interpretations of data, the publications emphasized, should be made only with the greatest caution.

As multiple assessments of a subject area became available, NAEP reports began to include trend data. These measurements of change have increased the visibility of NAEP data. Early reports were not widely disseminated by the news media because once one got past the reporting of demographic comparisons, the data had little meaning. Recent reports have drawn greater attention because comparisons over time have made the data more meaningful to educators and the public alike.

However, without skill achievement data, and without any determination of what is and what is not good performance, NAEP reports are still not as meaningful as they should be. Even if NAEP trend data reveal a steady decline, no one would be able to decide when the nation had reached a crisis point.

For example, of what significance is it if the average percent correct for 17-year-olds falls 2.1 percentage points in inferential comprehension test items as the 1981 NAEP press release describes (NAEP, 1981b)? What does this mean in terms of how many students can perform these skills? Is this area a problem or not?

NAEP officials have even been reluctant to endorse authorized interpretations of their own test results. To illustrate, consider the 1970-80 reading report which included a chapter entitled "A Perspective on the Results of Three Reading Assessments" (NAEP, 1981a). This was an attempt by NAEP to engage the services of specialists to interpret the data. However, NAEP exonerated itself of responsibility for the interpretations by saying:

> Observations by the panel of consultants provide a broad context for interpreting results of the three reading assessments and offer some view about future directions for reading instruction in America. Their opinions are theirs alone and do not necessarily represent either the views of the institutions with which they are affiliated or those of the National Assessment of Educational Progress, the Education Commission of the States, or the National Institute of Education (pp. 45-48).

Thus, NAEP again refused to take a position on what its own data mean.

Furthermore, the experts' analysis was meaningful only in relation to their descriptions of changes over time. They made such statements as:

> Black students at age 9, students who reside in the Southeast and those who attend schools in rural communities made the largest gains from the first to the third assessment (pp. 45-46).

> Thirteen-year-olds registered a significant increase in performance in literal comprehension from the first to the third assessment (p. 47).

> Overall performance of 17-year-olds remained relatively stable from the first to the third assessment (p. 47).

These statements are informative, but they stop short of making judgments about the adequacy of student achievement. No one seemed willing to say, "Seventeen-year-old students are acceptably proficient in reading."

Dissemination of test results is a form of communication--in this case, communication of information to various groups of citizens and educators. Ostensibly, the purpose of the communication is to achieve some desired outcome, such as better understanding of student needs and better allocation of national resources of energy and funds to improve the education of children. Within this context, NAEP is in the position to facilitate change in education, but such change will not occur unless citizens and educators perceive a need to change. How can they perceive a need unless someone tells them what the data mean? Until this problem is corrected, NAEP will not have much impact on education.

Providing Data for Educational Decision-Makers

Historically, NAEP has reported data which was primarily useful for educational researchers rather than for those who must make decisions about educational policies and programs. This system of reporting must be changed if NAEP is to be more useful to educational decision-makers.

National Assessment reports the overall percentages of items that students answered correctly. Unfortunately, this method of reporting is not useful in determining student academic needs. If a report states that fifty-eight percent of the student responses to questions on arithmetic computation were correct, the reader does not know if this is good or bad.

If, on the other hand, NAEP were to report what percentage of students nationally were acceptably competent in a specific skill or group of skills, then

data would be available which would more nearly define the educational "health" of the nation's students. Providing such information is not totally foreign to NAEP operations. In the 1972-73 mathematics asessment, for example, one set of three problems which addressed the properties of zero were administered to each respondent (NAEP, 1975, pp. 1-2). The results were reported in terms of the percentage of students answering each item, the percentage answering two out of three items, and the percentage answering all three items. Such a system could easily be used to establish desirable performance levels for individual skills.

NAEP typically concentrates on reports of comparisons or "contrasts" between various demographic groupings of students. For example, the previously mentioned Florida replication study included the following:

a. the relationship between sex and performance;
b. the relationship between ethnicity and performance;
c. the relationship between size and type of community and performance;
d. the relationship between parents' education and performance;
e. the relationship between reading materials in the school and performance;
f. the relationship between Spanish as a native language and performance; and
g. the relationship between age and performance (DOE, 1976 b).

Such comparisons have been reported in NAEP literature for several years. From a research point of view, such studies of the "correlates" of student performance are interesting when they are first done, but little seems to be gained by repeating such comparisons with each test administration. Knowledge of these relationships does not really help the educational decision-makers since

NAEP never attempts to offer explanations of what can be done to correct any relationship once it is revealed. Moreover, is it a wise use of NAEP resources to repeatedly demonstrate something so obvious as the fact that older students tend to provide more correct answers to a particular problem than younger students?

The avowed purpose of NAEP is to determine how well students are achieving certain important objectives in several curricular areas. Clearly, this purpose cannot be met as long as the NAEP data are reported in terms of items and as long as NAEP analyses concentrate on research questions such as the relationship between parental education and achievement. Emphasis should be shifted away from producing information for researchers and toward providing information for decision-makers.

Reporting State-by-State Data

Since its inception, the National Assessment has avoided collecting and reporting data from each of the individual states. Instead, NAEP reports national summaries and summaries for each of four geographic regions of the nation. This procedure not only masks where real strengths and weaknesses are within the nation, it prevents any "ownership" of the results. If this policy were reversed, states might well take more interest in the assessment program. They might even engage in the kind of competition which leads to greater excellence in student performance.

While NAEP has not routinely collected state-by-state data, it has encouraged individual states to replicate (to "piggyback") the basic NAEP administration, as Florida did. A few states have adopted the NAEP model as their state assessment program. However, even in those states, data are not available on a district-by-district or school-by-school basis because of the

cost of administering the NAEP tests to so many students. Thus, use of the NAEP approach presents two distinct problems: (1) states find it difficult to conduct a NAEP replication and (2) even if states do replicate the NAEP study they end up collecting data which cannot be summarized at the level where operational decisions are typically made about education--the district and the school.

To solve these problems, NAEP procedures could be altered to make it easier for states to gather state-level data and to gather data which would be useful at the school and district level. To obtain useful state-level data, NAEP could prepare a special set of multiple choice or short answer exercises which could be easily administered to an appropriately constructed sample of students within the individual state. These exercises should be selected from the current set of NAEP tests rather than from older, previously released items. States could either administer the exercises to a student sample drawn for this purpose or the exercises could be woven into the design of a state's existing assessment test. These exercises could be administered within a state either (1) as requested by a state, (2) annually, or (3) on a cyclical basis every few years. To gather data useful at school and district level, it would only be necessary for NAEP to provide a test brief enough to be easily administered to a total school or district student body (or a sufficiently sized sample). This small set of exercises then could be linked statistically to the national performance levels.

It should be noted, though, that if a state decides to obtain national comparison data by the current method of "piggybacking" or by any of the above methods, the state must accept the fact that NAEP tests are administered to age specific groups rather than to grade-level specific groups. Unfortunately, schools are not organized according to age levels; they are ordinarily organized

according to grade levels. Any data collected by a NAEP replication process, even if they were collected from every district, would thus be useless if analyzed in the way in which schools are organized. Conversion to grade-level administrations or expanding the present sampling structure sufficiently to extract grade-level information would, thus, enhance NAEP's utility to states.

It is conceivable that present NAEP policies precluding the collection of state-level information are the result of pressures exerted by advisors to the program years ago who feared the collection of such data. However, NAEP's collecting state-by-state data would not be bad. Such data, if available, would foster competition between the states in the same way that athletic teams now compete. Such competition, although acceptable in sports without question, has traditionally been avoided in academic areas. This attitude needs to be changed.

The Florida Board of Education recently adopted a five-year program improvement goal which states that Florida achievement will be in the upper one-fourth of the states within five years. This goal was established with the full knowledge that it implied competition where none had taken place before--namely, state against state. The Board believes that establishing this program improvement goal will promote a competitive spirit. They believe that recognizing strengths and weaknesses and rewarding educational accomplishments will bring increased public support for the public schools and provide an incentive for excellence for students and schools throughout the state.

To summarize, comparisons between states can lead to improved educational programs. At the very least, NAEP procedures should be changed to make it more economical for states to compare themselves to the national achievement trend as revealed by NAEP tests.

Promoting Excellence in State Assessment Programs

Without a doubt, since its inception, NAEP has advanced the measurement art. Its accomplishments are readily accessibe through its many publications. However, its primary accomplishment has been the creation of a unique approach to achievement testing, and NAEP's dissemination and technical assistance efforts have primarily been focused on getting people to adopt NAEP methods. Assistance to states which have their own assessment programs has been minimal. This needs to be changed.

To illustrate, consider the popular NAEP Summer Conferences. Originally, these conferences emphasized presentations about the NAEP program design, e.g., multi-stage sampling, objective development, and item writing processes. Conference evaluations from participating state testing officials , though, made it clear that they needed sessions which would help them perform their tasks better, not sessions devoted primarily to understanding how NAEP functions. For a brief time, more technical topics were included in the conferences, but the conference agendas have now become very general. This has occurred because of the way in which the conference plans are developed: after each conference, the previous conferees are asked to evaluate the sessions and, later, to help plan the next session. Thus, as the audience became more general, the topics became more general.

Because the NAEP Summer Conference no longer provides the practical information and assistance needed by program managers at the state level, an informal network of such people has developed over the last three or four years. A group of state testing directors now meets twice each year to exchange information about their programs and the solutions to their daily

challenges. This informal network has been quite successful and, in many ways, has become an essential part of the operation of current state assessment programs. The directors have found that they must help each other because they know NAEP does not offer technical assistance to states nor does its expertise extend to the tasks state programs have undertaken. NAEP cannot be a technical leader among the various states unless it begins to offer such assistance.

Developing Instructional Materials

The NAEP efforts over the past several years have produced much information about student achievement. However, it is not clear that anyone has taken the information and produced instructional materials which address student deficiencies revealed by the data. NAEP officials need to take steps to alleviate this situation.

Part of this problem can be traced to the problems discussed previously in this paper, e.g., lack of clear performance standards and lack of adequate interpretations. However, NAEP policies also contribute to the situation because they place NAEP in the position of letting someone else assume responsibility for solving the problems (assuming someone can recognize the problems from the data). Just who should assume this responsibility is unclear. It probably is the responsibility of scholars, publishers, school officials, and others who write instructional materials. However, NAEP should not remove itself from developing model instructional materials, nor should it avoid attempting to influence others to produce such materials.

It is in the best interests of NAEP to encourage use of its data, because if the data are not used, the program's usefulness will be called to question. NAEP

can accomplish better use of its data by concentrating less on providing data to answer esoteric research questions and concentrating more on encouraging national curriculum organizations and notable scholars to understand and use the data. Specifically, NAEP needs to encourage the production and dissemination of instructional materials which are tailor-made to address the areas of student need as revealed by the tests. If, for example, mathematical problem-solving is a national need, then someone should be producing materials to address this need. While NAEP probably should not turn itself into a publishing house to accomplish this, there is no reason why it cannot produce one or two fliers or brochures which would contain teaching hints for teachers who wish to address this "high need" area. These materials would then spark the production of other materials by those who <u>are</u> in the publishing business.

Summary and Conclusions

In viewing the National Assessment of Educational Progress, one cannot help concluding that the program has been worthwhile. Much has been learned about student achievement and the relationship of important variables, such as race, to achievement. The design of the Assessment probably was appropriate for the late 1960's, but that design, in some ways, has outlived its usefulness.

The original NAEP design stressed the accumulation of data which would not be offensive to anyone. Aggregations of data at the state level were avoided. No attempt was made to establish competency criteria and define minimum acceptable skills. Emphasis was placed on sophisticated sampling strategies and the extrapolation of every bit of minute information which one might extract from an achievement survey. Little or no effort was made to interpret the results. In retrospect, it is easy to see why NAEP has been accused of having little impact. If one avoids doing anything controversial, impact is almost assured to be minimal.

The time has come for the original NAEP design to be altered so the program can have greater impact. This can be done by establishing what constitutes acceptable student performance, interpreting the assessment data, strengthening the relationship between NAEP and the individual state assessment programs, and exerting more effort to have curriculum developers use the data. There is little need to intensively monitor with each administration the "correlates" of achievement since changes in these relationships occur so slowly.

The National Assessment of Educational Progress is important to the success of education in the United States. NAEP is in a unique position to encourage improvements in education because of the information it alone can produce. However, to accomplish this aim, NAEP must reverse some long-standing policies and adopt some bold, new procedures. The changes recommended herein are entirely possible to implement, and the end results should be positive. These changes will result in better information available to citizens. This, in turn, will result in more positive support for the schools and an improved educational system.

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